



**PATENT**  
Attorney Docket No. 400113/ASAHINA

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

HIROAKI SATOH

Application No. 09/271,447

Art Unit: 1762

Filed: March 18, 2002

Examiner: M. Cleveland

For: PROCESS FOR FORMING A  
PATTERN OF FLUORESCENT  
SUBSTRATE AND PLASMA  
DISPLAY PANEL

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**PENDING CLAIMS AFTER AMENDMENTS  
MADE IN RESPONSE TO OFFICE ACTION DATED APRIL 3, 2002**

1. A process for forming a pattern of fluorescent substance into the cell of a fluorescent substance display substrate comprising providing inside the cell two separate layers which are (i) a non-photosensitive resin composition (A) layer and (ii) a photosensitive resin composition (B) layer, exposing the layers to light, developing the exposed layers, and baking the developed layers; wherein the resin composition (A) layer comprises an acrylic polymer (a) having a weight average molecular weight of 10000 to 300000 and an acid number of 80 to 250 mgKOH/g and a fluorescent substance (b), and the resin composition (A) layer is disposed between the inside of the cell and the photosensitive resin composition (B) layer.
2. The process for forming a pattern of fluorescent substance of Claim 1, wherein a glass transition temperature  $T_g$  of the acrylic polymer (a) is below 30°C.
3. The process for forming a pattern of fluorescent substance of Claim 1, wherein the glass transition temperature  $T_g$  of the acrylic polymer (a) is not less than 30°C and the resin composition (A) contains an organic compound (c) having viscosity of 5-15000 mPa · sec at 20°C.
4. The process for forming a pattern of fluorescent substance of Claim 3, wherein the resin composition (A) contains an organic compound (c) having viscosity of 5-15000 mPa · sec at 20°C and a polymerization inhibitor (d).

5. The process for forming a pattern of fluorescent substance of Claim 3, wherein the organic compound (c) is a polyhydric alcohol compound.
6. The process for forming a pattern of fluorescent substance of Claim 3, wherein the organic compound (c) is a compound containing at least one ethylenically unsaturated group, and the resin composition (A) contains a polymerization inhibitor (d).
8. A process for forming a pattern of fluorescent substance into the cell of a fluorescent substance display substrate, wherein a non-photosensitive resin composition (A) layer, comprising an acrylic polymer (a) having a weight average molecular weight of 10000 to 300000 and an acid number of 80 to 250 mgKOH/g and a fluorescent substance (b), and a photosensitive resin composition (B) layer are formed inside the cell, and then they are exposed, developed and baked, wherein the photosensitive resin composition (B) layer is formed in the cell after the resin composition (A) layer is formed.
10. The process for forming a pattern of fluorescent substance of Claim 8, wherein a glass transition temperature  $T_g$  of the acrylic polymer (a) is below 30°C.
11. The process for forming a pattern of fluorescent substance of Claim 8, wherein the glass transition temperature  $T_g$  of the acrylic polymer (a) is not less than 30°C and the resin composition (A) contains an organic compound (c) having viscosity of 5-15000 mPa · sec at 20°C.
12. The process for forming a pattern of fluorescent substance of Claim 11, wherein the resin composition (A) contains an organic compound (c) having viscosity of 5-15000 mPa · sec at 20°C and a polymerization inhibitor (d).
13. The process for forming a pattern of fluorescent substance of Claim 11, wherein the organic compound (c) is a polyhydric alcohol compound.
14. The process for forming a pattern of fluorescent substance of Claim 11, wherein the organic compound (c) is a compound containing at least one ethylenically unsaturated group, and the resin composition (A) contains a polymerization inhibitor (d).
17. The process of claim 1, wherein the resin composition (A) layer and the photosensitive resin composition (B) layer are provided such that the layers are in contact with each other.

18. The process of claim 1, wherein the resin composition (A) layer and the photosensitive resin composition (B) layer are laminated and placed inside the cell.
19. A process for forming a pattern of fluorescent substance into the cell of a fluorescent substance display substrate comprising providing inside the cell two separate layers which are (i) a non-photosensitive resin composition (A) layer and (ii) a photosensitive resin composition (B) layer, wherein the resin composition (A) layer, comprising an acrylic polymer (a) having a weight average molecular weight of 10000 to 300000 and an acid number of 80 to 250 mgKOH/g and a fluorescent substance (b), and the photosensitive resin composition (B) layer are formed inside the cell, and then they are exposed, developed and baked, wherein the photosensitive resin composition (B) layer is formed in the cell after the resin composition (A) layer is formed.